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Transforming information literacy conversations to enhance student learning: new curriculum dialogues

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Abstract
Information literacy is an essential component of the La Trobe University inquiry/research graduate capability and it provides the skill set needed for students to take their first steps on the path to engaging with academic information and scholarly communication processes. A deep learning approach to information literacy can be achieved if students have an opportunity to build awareness of generic skills followed by practice in their discipline context. This article describes a collaborative model for developing and embedding information literacy resources within disciplines, that is based on Biggs and Tang's (2007) concept of constructive alignment, and that is suitable for implementation on an institutional scale.

The article explores the application of the model through interviews with academics and concludes by providing a set of reflections on the importance of librarians taking an educationally theorised approach to both teaching and learning conversations related to information literacy and to the development of curriculum resources. All of which, need to be focused on collecting evidence of student learning outcomes.

Keywords
information literacy, graduate capabilities, constructive alignment, learning outcomes, collaboration

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Introduction

Australian universities, like many across the globe, have been developing clear sets of generic graduate attributes/capabilities as a key part of curriculum provision and distinctiveness for some time. These capabilities (as they are called at La Trobe University) are intended to describe the achievements of graduates beyond the core disciplinary knowledge and professional skills of their specialist studies. In many ways, graduate capabilities offer a generic statement about what a higher education graduate ought to know and be able to do regardless of the discipline they have studied.

This paper provides an account of the contribution that a group of academic librarians at La Trobe University have made to the development of one specific university-wide graduate capability, inquiry/research – and more specifically, information literacy as part of the institutional strategy *Design for Learning* (DfL). It showcases in particular, a collaborative model for developing and embedding information literacy resources within disciplines (subjects and courses). This is a model that draws explicitly on Biggs and Tang's (2007) notion of constructive alignment, that sees the individual librarian/academic partnership as key, and finally, that focuses on evidence of student learning outcomes. This tripartite approach is atypical among academic librarians who have been in the main, unused to adopting a theorised perspective to the development of their curriculum activities and resources despite long advocated calls to do so (Bruce 2001; Lupton 2004).

In elaborating the model, the paper first describes La Trobe's institutional curriculum, teaching and learning context and the central role of academic librarians to university strategy. Second, it locates the model and its development within discussion and debate within the library literature. Third, the paper describes the various ways the model was used in eight subjects, and draws on interview data from the academics leading those subjects about changes in students' understanding of information literacy. Finally, the paper concludes by providing a set of reflections on the importance of librarians taking an educationally theorised approach to the development of curriculum resources which focus on collecting evidence of student learning outcomes.

Graduate capabilities and information literacy

University graduate capabilities are often the trigger for librarians to think more strategically about how information literacy is embedded into curriculum design (Dearden, Dermoudy & Evans 2005). This is a shift welcomed by librarians who recognise information literacy as a campus-wide curriculum design issue (Rockman 2004; Shane 2005; Corrall 2008). When information literacy is included in university graduate capability statements it reflects a “top down” approach to information literacy as a core institutional value (Curzon 2004; McGuinness 2007). What needs to follow is conversations about how best to achieve the institution’s information literacy objectives and what is the optimal approach.

The reasons for and against different approaches need to be weighed up in terms of appropriateness and fit for an institution’s teaching and learning agenda. Is it better to embed information literacy skill development into discipline content or to teach information literacy skills to undergraduate students by disarticulating learning about information literacy from the context of individual subjects? Through establishing either a credit point information literacy subject (Johnston & Webber 2003), or a discipline major (Badke 2008) or a compulsory generic online tutorial for new undergraduates (Crawford & Broertjes 2010) universities provide all students with an opportunity to learn generic information literacy skills. Advocates of the stand-alone subject argue that information literacy is a discipline in its own right

(Blackall 2002; Johnston & Webber 2006) and compulsory generic tutorials delivered online easily solve problems of scale and equity (Borrelli, Johnson & Cummings 2009; Johnston, 2010). The disadvantage of these methods is that while all students may be given the opportunity to learn about critical skills they often need help to make the link between generic skills and application to their own discipline (Crawford & Broertjes 2010, p.192). From the perspective of individual La Trobe librarians and academic staff, campus-wide generic options offer limited flexibility for embedding information literacy in the discipline content and explicitly aligning skill development to subject learning outcomes, learning activities and assessment.

At La Trobe University there are six graduate capabilities[1] outlined in *Design for Learning* (La Trobe University 2009). Information literacy is an essential component of the inquiry/research graduate capability (La Trobe University 2011a) which puts information literacy firmly on the university teaching and learning agenda. At La Trobe, *Design for Learning* explicitly requires that graduate capabilities are mapped at three points across an undergraduate course and then embedded into subject design. This provides a clear direction for how to proceed with undergraduate student information literacy skill development at La Trobe.

Embedding information literacy into the curriculum

Information literacy is defined as 'an understanding and set of abilities enabling individuals "to recognise when information is needed and have the capacity to locate, evaluate, and use effectively the needed information"' (Bundy 2004, p.3). In the academic context it encompasses that variety of skills associated with research that leads to information seeking behaviour characterised by a high degree of discernment and scholarship that can be transferred beyond university to professional life and lifeline learning. In other words, it is critical for developing students' research and inquiry capability and as such needs to be embedded in the curriculum.

Embedding information literacy into the curriculum in some form is an approach widely favoured by individual librarians and academics (Cochrane 2006; Ward & Hockey 2007; Ford & Hibberd 2012). Collaboration provides a practical and essential starting point for embedding information literacy into the design of individual subjects. It is a logical partnership as academics have oversight and responsibility for their subject design, and librarians have expertise in teaching and learning for information literacy. Jacobson and Mackey (2007) put forward evidence of a number of examples of librarian/academic collaboration and likewise the plethora of case studies in the literature outlines the many productive outcomes of librarian/academic collaborations (Lindstrom & Shonrock 2006; Miller et al. 2010; Chen & Lin 2011). Articulating information literacy skill development within a subject or course through collaboration between librarians and academics is not only considered best practice (Hunt & Birks 2004), it is a key and recurring theme in the library literature (Derakhshan & Singh 2011).

Librarians' descriptions of embedded information literacy approaches range from the common "one-shot approach" where the embedded learning activity has little or incidental congruence with subject learning outcomes (Mestre et al. 2011, p. 236), to any combination of information literacy learning outcomes, learning activities or assessment tasks. Whether these elements relate to each other, and the degree to which their attachment to curriculum content and design is underpinned by pedagogical theories, also varies. While librarians may understand the importance of pedagogical knowledge to their role (Bewick & Corrall 2010), pedagogy

[1] The six La Trobe graduate capabilities are; writing, speaking, teamwork, critical thinking, inquiry/research, and creative problem solving.

receives less attention in the library literature than discussion around the need for collaboration and promotion of the importance of embedding information literacy (Derakhshan & Singh 2011).

A constructivist approach to learning about information literacy has been adopted by some librarian/academic teams as a basis for their collaboration (Cooperstein & Kocevar-Weidinger 2004, Johnson 2007; Derakhshan & Singh 2011). This approach allows students to build on their existing information literacy knowledge as they engage with discipline specific learning activities (Webster & Kenny 2011). Central to these descriptions of more theorised approaches is reference to national information literacy standards (Ward & Hockey 2007; Maitaouthong, Tuamsuk & Techamanee 2010; Ford & Hibberd 2012; Fosmire 2012). While positive and productive outcomes are not reliant on a theorised approach or mutual understanding of information literacy standards, sharing an educational philosophy could be considered as central to enabling 'robust boundary-crossing discussions' (Phelps & Campbell 2012, p.16). An explicit focus on shared educational values is considered an important antecedent to trust and commitment in successful collaborative relationships (Carrie & Mitchell 2010, p.49; Phelps & Campbell 2012).

While many authors conclude that the success of their embedded approach is transferrable and has clear application for other courses and disciplines (Brown & Krumholz 2002; Belanger, Bliquez & Mondal 2012; Ford & Hibberd 2012; Locknar et al. 2012), questions of sustainability have been raised (Callan et al. 2001). There is a sense that the embedded approach is time consuming and not an easy fit with a "top down" call for information literacy. An institutional response to information literacy requires large scale efforts within a wider plan or strategy (MacDonald, Rathemacher & Burkhardt 2000) that goes beyond individual relationships between librarians and academics (Cmor 2009). It seems a key characteristic of many of these successful collaborations is that they represent a "bottom up" response to embedding information literacy and further, not all of them appear to be based on a theorised approach. Finding an institutional information literacy solution that affords "the highest degree of permanence and acceptance by the organization" (Weiner 2012, p.2) requires both a top-down strategic initiative, implemented through bottom-up collaborations (Shane 2005; Cmor 2009) and based around a pedagogy that will result in learning-centred outcomes for students. In the higher education environment, embedding information literacy into curriculum design needs to be negotiated across all these domains.

LTU model for embedding information literacy

The LTU model is designed to be applied to subjects where inquiry/research is assessed, as identified by faculties as part of the *Design for Learning* mapping process. The educational theory of constructive alignment (Biggs & Tang 2007) provides a basis for ensuring information literacy resources are not detached from the curriculum, and are embedded in these subjects in a way that is meaningful for students and results in measurable student learning outcomes. Constructive alignment is a "marriage between a constructivist understanding of the nature of learning and an aligned design for teaching that is designed to lock students into deep learning" (Biggs & Tang 2007, p.54). When embedded information literacy resources are designed to be aligned with the subject intended learning outcomes, learning activities and assessment tasks, then it is clear what the student needs to learn, how they progress to developing those skills, and how this learning will be assessed. In a constructively aligned model for embedding information literacy, learning outcomes, learning activities and assessment tasks all need to be in place and be overtly connected within the subject.

Adaptable and reusable online learning resources provide a mechanism for implementing a constructively aligned approach to embedding information literacy in individual subjects, as part of a campus-wide initiative, in a way that is both equitable and sustainable. An online

learning resource is simply a "reusable instructional resource, usually digital and Web-based, developed to support learning" (Mestre et al. 2011, p. 237). Online reusable learning objects are "an important aspect of a scalable learning landscape" (Kammerlocher et al. 2011, p. 392). They can be used to embed, "recontextualise and adapt" learning activities to support different discipline contexts. They can provide individual feedback on skill levels and they can be designed around standards and intended learning outcomes. They provide a sustainable alternative to face-to-face library classes and enable self-paced learning that can be accessed "at times and places that suit the learner" (Hanfling, Goldsworthy & Bader 2011). Most importantly when embedded learning resources reflect principles of constructive alignment, they can contribute to increased consistency between learning outcomes, activities and assessment (Kenney 2012).

Key to the La Trobe model for embedding information literacy is ensuring that online resources developed by librarians are interrelated to subject elements, i.e. learning outcomes, activities and assessment. This has been achieved by designing online objects to specifically address intended learning outcomes in the La Trobe *Information literacy framework* (La Trobe University 2011b). This framework supports subject inquiry/research intended learning outcomes. It quantifies intended learning outcomes for each of the six framework standards across four levels of capability, and is based on the *Australian and New Zealand information literacy framework, principles, standards and practice* (Bundy 2004). Therefore the online resources form part of a logical learning system and the outcome is focused directly on student learning. Once embedded in the curriculum, these online resources provide students with an opportunity to recognise what they know and need to know, have a scaffold on which to build basic generic skills, and then practice those skills in discipline learning activities and receive feedback before attempting assessment tasks.

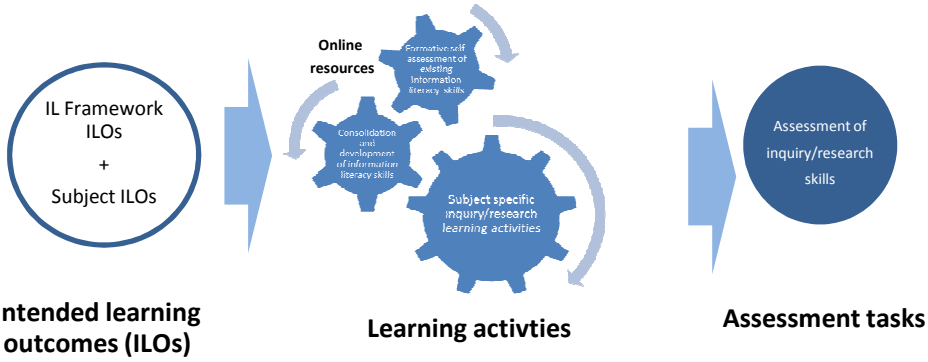

Figure 1: Using constructive alignment to embed information literacy into subject design

Developing information literacy: the online learning resources

The Library online learning resources that support the La Trobe model for embedding information literacy into the curriculum are described in detail below. These reusable online learning objects[2] have been designed to work together as a springboard to meaningful discipline-based research tasks and activities. Subject coordinators can use these online resources in a way that is relevant to what they want students to learn about inquiry/research in the context of their subject and discipline.

[2] Available from Inquiry/Research toolkit - http://www.lib.latrobe.edu.au/ir-toolkit/

Inquiry Research Quiz (IRQ)

The online IRQ is a formative self-assessment of existing skills and knowledge, and is designed to increase student awareness of the essential information literacy skills required for starting research at university. The IRQ includes a set of ten questions and is designed to be: a self-assessment, self-tutoring formative test of foundation information literacy skills; completed early in first year; related to the standards one to four and six of the La Trobe *Information literacy framework*; implemented in a way that makes sense to the context of the specific subject requirements; auto-marked with feedback via online objects; and a method of directing students to appropriate and more in-depth online information literacy resources.

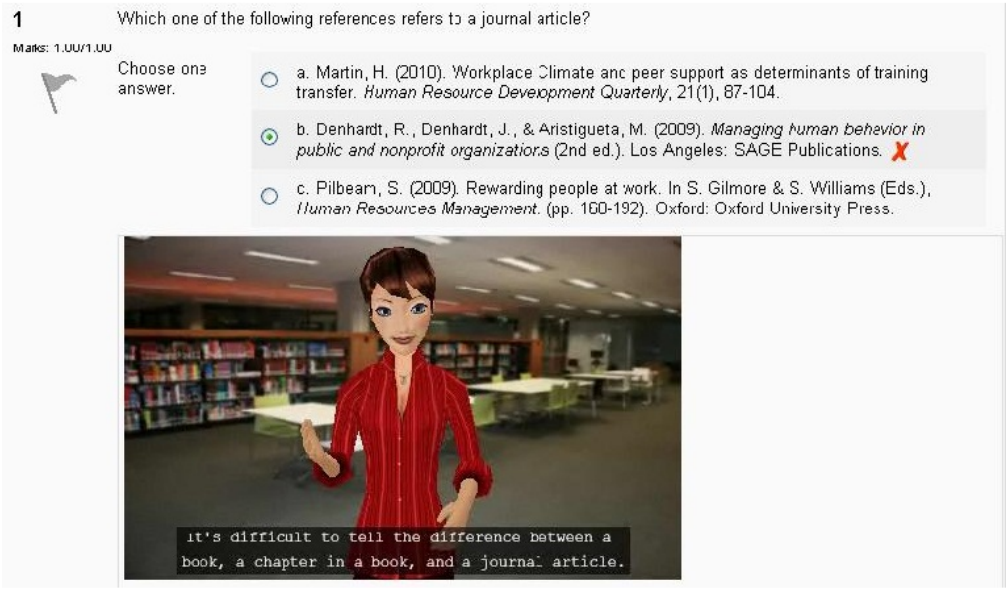

Figure 2: IRQ - question and feedback

The questions were developed to provide clear feedback about expectations of beginning research at university; and to indicate where skills needed to be strengthened. The format of question feedback is via a suite of one minute animated videos explaining key concepts pertinent to each of the questions and related intended learning outcomes. When a student answers a question correctly, an animated avatar reaffirms their existing knowledge. When a student answers incorrectly, the avatar corrects them in a positive manner with a concise explanation which also links to the relevant online module or another learning object e.g. the Assignment Calculator. Simplicity was vital to ensure that the IRQ was not too complicated or over engineered.

Online Learning Modules

LibSkills[3] is a set of eleven online modules that provide students with the scaffolding to deepen their understanding of essential skills related to inquiry/research. LibSkills modules build on IRQ topics to foster consolidation and development of foundation skills and support the IRQ online feedback. Returning to these resources is encouraged so that students are incrementally building on their own skill development; however use is not compulsory nor is it tracked or evaluated in terms of learning outcomes. LibSkills modules are promoted widely by librarians and academic staff and there are a range of access points, so usage is not a direct

[3] Available from http://latrobe.libguides.com/libskills

reflection or result of links in the IRQ. However overall usage of library online information literacy tutorials (including LibSkills) is increasing and usage data indicates this general upward trend. Total visits to pages within library online tutorials increased in 2011 (366,285 hits) compared to 2010 (40,968 hits).[4]

Implementing the learning resources in subject design

When the IRQ and the modules are followed by discipline-based research tasks, students can put into practice the functioning knowledge from the modules and underpinning declarative knowledge from the quiz. The advantage of this model of building information literacy skills for inquiry/research is that approaches to implementation can be varied according to individual subject design and structure. Faculty librarians in each discipline initiated conversations with subject coordinators to discuss embedding resources and implementation involved collaboration between academics and librarians. Without exception, academics were enthusiastic and immediately saw the benefits for their discipline. The following table shows how the IRQ was used in each of eight subjects in semester 1, 2011.

Subject	**How IRQ embedded**	**Subject Enrolment**	**No. students Completing IRQ**
Interprofessional Practice (Health Sciences)	Week 1 Voluntary completion Assessed IL Quiz 2 occurs in week 11	1756	948 (54%)
Oral Health A (Health Sciences)	Week 1 Hurdle requirement I/R skills assessed in assignment 1	76	68 (90%)
Foundations of Management (Law & Management)	Weeks 1-2 Hurdle requirement with 3 attempts allowed Require 80% correct	421	418 (93%)
Management (Law & Management)	No time frame Voluntary completion	30	14 (46%)
Concepts of Wellbeing (Education)	Weeks 1-3 Hurdle requirement I/R skills assessed in stage 2, assignment 1	385	346 (90%)
Sociology 1 (Humanities & Social Sciences)	Weeks 1-3 Voluntary completion	769	408 (53%)
Biology 1 (Science, Technology & Engineering)	Week 1 Strongly encouraged Required for essay preparation in week 7	826	223 (27%)
Psychology 1 (Science, Technology & Engineering)	Week 2 Compulsory tutorial group learning activity Completed in pairs with small group discussion	1005	643 (64%)[5]

Table 1: Use of IRQ, Semester 1, 2011

Because the IRQ was delivered via the university learning management system (LMS) in addition to the above IRQ completion data, academics and librarians also had access to automatically generated analytics about each IRQ item including number of attempts, mean, average etc. and in some subjects this information was used for further analysis of student learning.

[4] As reported in *La Trobe University Library Year in Review 2011*, available from http://www.lib.latrobe.edu.au/about/publications/yearinreview-2011.pdf

[5] Only one student in each pair was required to log in to the IRQ via the LMS; therefore the more than 50% completion rate indicates some students revisited IRQ after the tutorial group activity.

Academic staff perceptions of embedding the resources in subjects

Of the subjects that embedded the use of the IRQ and the subsequent LibSkills modules (Table 1), staff from seven of the eight subjects participated in semi-structured interviews, conducted by one of the librarians in the team. Ethics approval for these interviews with subject staff was granted by the Education Faculty Human Ethics Committee in September 2011. Where possible, the interviews took place directly with the academics responsible for subject coordination (to probe their decision-making for embedding the IRQ), however, in two subjects, interviews took place with the faculty-based Learning Skills Advisor – the person whom the coordinator had given responsibility for embedding the model into the subject.
These staff were invited to:

- describe how the IRQ had been embedded in their subject, their rationale for doing so, and to reflect on how use of the resources might be improved;
- reflect on whether/how the IRQ had contributed to any noticeable improvements in students' information literacy skills – and to describe the evidence for it; and
- describe whether they had been explicit in drawing links between the IRQ and the LibSkills as part of a student activity.

The interviews were audio-recorded, transcribed, and the data analysed for frequency of topics and themes using a method based on Strauss and Corbin's (1990) open coding analysis. This process revealed seven major topics (Embedding/alignment; Student learning outcomes; Life-long learning; Collaboration; Compliance; Subject review; Technical implementation) and within these topics a further 36 minor themes. However, reporting frequency of themes is not the main focus in this paper. What is presented below is a snapshot of the educational decision-making reported by subject staff to use/embed the resources, together with their perceptions about improvements to the quality of information literacy outcomes for students.

IRQ: voluntary, hurdle, focused in-class activity or assessment?

The interviews show the different ways the IRQ was put to use across subjects, containing all the hallmark features of a reusable learning object (Wiley 2000, McGreal 2004). In Sociology, the IRQ was perceived as a welcome addition to the subject in that it helped to acquaint first year students early on with recognising reference types: 'it was a good way to introduce the students to references and what is an edited collection (sic)' without offering too much challenge to the existing subject design. The value of the IRQ appeared to be its easy and flexible fit.

> … it was more just a (sic) encouraging the students to do the quiz without saying if you do it and get it wrong, do the modules. We didn't really introduce that into the mix it was more just letting them know that there was this very useful quiz that they could do that would help them with library skills and it was up to them if they did it since it was a voluntary thing.

Although not voluntary, in Oral Health completion of the IRQ was completed by students as a hurdle requirement.

> I tell them it's a hurdle, it's not worth any marks, it doesn't matter if you pass or fail. The fact is that you must learn how to use the library facilities.

A similar approach was taken in the Management subject – although it is more explicitly diagnostic. Students are given three opportunities to achieve 80% on the IRQ in the first 3

weeks of semester. If they do not achieve the 80% benchmark, they are required to participate in a Bridgeworks[6] workshop.

A number of the other subjects adopted a more consciously embedded approach, especially when the IRQ constituted a key part of an in-class activity in preparation for an assessment task – as was the case with Psychology, Biology and Education. A good illustrative example was Psychology:

> We tried to embed it within our existing task for the students. We started off with a lecture on how to write and how writing in science and more specifically Psychology is done and then the quiz itself was a tutorial exercise that the students had to complete. We set them up and said this is going to teach you how to reference and this is going to help you find good references for the assessment task that we are asking you to complete. So they completed the task in pairs in the tutorial...

The most sophisticated of the seven subjects – Concepts of Well Being (Education) – used the IRQ in a way that demonstrated a consciously educative rationale, and was focused explicitly on the link between feedback, assessment and the demonstration of student learning.

> … I got hold of the framework that they used to write the quiz (IRQ) and that had cornerstone descriptors written into the framework. So I took the cornerstone ones and converted them into a rubric that I used to assess students inquiry/research skills in the subject.

The framework referred to here by the Education Subject Coordinator is the La Trobe *Information literacy framework*. She goes on to describe in the interview the way in which the IRQ fits within an assessment task that contains four related parts. The IRQ is used in the first and second stages as forming foundational knowledge and skills. The first stage is where students engage in a practice run of the IRQ, and the second stage is where the staff member provides feedback on students' achievement of inquiry/research skills leading to the final stages of the task.

Evidence of improved student information literacy knowledge and skills

When invited to comment on their perceptions of students' information literacy knowledge and skills improving after having used the IRQ in their subject, many of the staff could not say, were reluctant to say, or indicated proxy measures for student outcomes. Moreover, the difficulty in isolating the effect of the IRQ alone on students' improvement is offered by both the Oral Health and Sociology staff:

> It's a little bit hard because we have this library task in first semester and we don't get a chance to see the students' writing capability before that (Oral Health).

> I think it's really hard to tell because we're trying to contribute to their learning in so many other ways as well. It's hard to tell the actual contribution itself (Sociology).

Another way subject staff described the impact of embedding the IRQ was to review the quality of students' work. The following comment is taken from Biology and Psychology respectively:

[6] *Bridgeworks* is a Faculty of Business, Economics and Law program of essential academic skills tutorials, including academic writing, speaking, research and calculation. http://www.latrobe.edu.au/students/fbel/new-students/bridgeworks.html

> I noticed that they didn't have a list of websites at the end, they had good quality sources, that they'd learned to reference well… I think the IRQ and LibSkills gave them the language – in comments, they were writing the word scholarly – it really gave them the language to talk about their information literacy skills.
>
> The biggest difference in quality at an end point as a learning outcome for students was we didn't see any Wikipedia references in the essays the students submitted. This was fantastic. The questions in the quiz actually highlighted to students what is an appropriate reference and what isn't an appropriate reference and they took that on board.

Improving the use of the IRQ in the future

While the interview data demonstrates that these subject staff used the IRQ in different ways in terms of their context, rationale, readiness, experience, link to learning outcomes, feedback and assessment, nearly all staff commented that given more time, their future use of the IRQ might be more considered. They could see the potential of the IRQ in ways that they had not yet tapped into or been able to use. Below is a reflection from the staff member in Health Sciences:

> In my mind, we didn't embed it as well as we could have. I think we've got some scope to improve how we connect it to the curriculum a bit more and make more explicit, the link to skills development in that area.

And from Education:

> It's not a difficult thing as an academic to have a quiz included in your subject but there's a whole lot more you can do with it rather than just allowing it to exist there. Next time I use it, I would definitely talk about it more with the students.

Reflections

Although only three main themes are offered for reflection from the interviews with subject staff who used the IRQ in their subjects, there are further observations to be made. First, while the *Design for learning* strategy legitimised the contributions of librarians to a strategic level curriculum conversation, what became clear is that the nature of the collaboration with academics about graduate capabilities needed a strong theoretical basis focused on student learning. Without a concept such as constructive alignment and its focus on the relationship between intended learning outcomes, teaching and learning activities, feedback/assessment, there remains a danger that the focus on student learning outcomes is lost. Like academics, librarians too are seeking evidence that the resources they produce, the activities they engage in, and the encounters and conversations they have with academics, result in better student learning.

Second, there is a temptation to measure the success of this project on the uptake of the IRQ and online learning modules being embedded into targeted subjects. On that measure the success rate is 100%. Librarians at La Trobe have long collaborated with academics on information literacy and the fact that the IRQ and online modules were picked up so readily in part reflects the established goodwill and the existing close collaborative relationships. The interview data provides evidence that there was a difference in whether the resources were embedded implicitly or explicitly and whether there was a conscious educative rationale on behalf of the academics in how these tools were embedded. This reflects Saunders' (2012) findings that there is still room for librarians to initiate and sustain conversations with academics around information literacy and more specifically, these conversations need to be

more educationally focussed and link institutional objectives, educational theory and student learning outcomes. Librarians are in the position to infuse these conversations with the strong message that a theorised approach to embedding information literacy will impact student learning outcomes in a more convincing way.

Third, librarians and academics need to think about evaluation of student learning as an important first part of their conversations about information literacy. For example, one avenue to explore could be to include an item about information literacy as part of the formal end of subject student feedback survey. This is not usually an onerous route but it does require academics and librarians to plan ahead and to consider how improvements to information literacy outcomes might be evidenced. Evaluations of these collaborative efforts often fail because they do not start with student learning outcomes.

Historically, librarians have relied on their personal contact with academics to facilitate information literacy skills acquisition with students. The majority of librarians have been able to find their "library champions" within faculties. That is, academics who understand the role of the librarian as a partner in teaching and learning and "who are enthusiastic and willing to work with librarians" (McGuiness 2007, p. 26). Through these collaborations individual librarians are able build up substantial networks and become very involved in particular subjects. But despite the intensity of this involvement it is often ad hoc or unsustainable and not scalable to all academics who are stakeholders in building students' information literacy skills. Furthermore the relationship building and networking is lost upon the departure of key individuals.

One significant outcome from the implementation of the IRQ has been the redefining of the relationship between librarians and academics. Through the institution-wide adoption of the inquiry/research graduate capability and the *Design for Learning* principles, the relationship between librarians and academics has become more intentional. The result is a more coordinated and systematic approach to providing academics with the resources to embed information literacy in subject design. Collaboration remains the critical element; however there is a renewed teaching and learning focus around the shared institution-wide ambition to embed the inquiry/research graduate in to curriculum design. Explicitly embedding information literacy resources within subjects through constructive alignment has been realised both through collaborative practice and conversations that will "help to advance the discourse of information literacy further into the disciplines" (Saunders 2012, p.227); while at the same time achieving institutional objectives related to information literacy. A new partnership between the major stakeholders has been established, one which will extend beyond "library champions", transcend staff movements, involve all teach and learning staff and bring stability and consistency to the development of inquiry/research capabilities.

Conclusion

To establish an information literacy foundation for all students that matches *Design for Learning* principles, and that suits the nature and character of inquiry/research in each discipline is complex. The key challenge for librarians at La Trobe has been to develop a sustainable and scalable solution for embedding information literacy skill development in curriculum design across all courses and all five campuses. Librarians at La Trobe responded to the institutional imperative to embed graduate capabilities in the curriculum by taking a more theorised approach to their information literacy practice and conversations.

To increase students' readiness and capability to use scholarly information, it is important to provide opportunities for the development of information literacy skills in the context of a discipline. A deep learning approach can be encouraged if students have an opportunity to build, apply and practice basic generic skills in a non-confronting and comfortable learning environment. The online learning resources developed by the library support broad university

objectives related to the inquiry/research graduate capability, and contribute to a method of information literacy skill development that is scalable across all faculties and flexible enough to be adapted to suit the design of individual subjects.

The interviews with academics revealed that they are using the IRQ and LibSkills as scaffolding to support preparation for discipline-based learning activities. What is interesting is the variety of ways these reusable online objects were embedded and the fact that the same generic objects were able to be used in across multiple disciplines to explicitly and coherently prepare students for starting academic research. The interviews showed the IRQ and LibSkills modules have the potential to be highly embedded across a range of disciplines and that this has value in terms of student learning outcomes. One of the key advantages of these learning objects is that they give academics flexibility and control in how they are used.

The success of the IRQ and LibSkills also suggests that when librarians build reusable learning objects that are designed to be used as part of a constructively aligned curriculum, they can work in partnership with academics in ways that go beyond individual subjects to supporting university teaching and learning objectives related to information literacy. The teaching and learning outcomes of this kind of partnership are scalable, measurable, sustainable and most importantly meaningful for all students. A constructively aligned model changes the nature of the dialogue around embedding information literacy into the curriculum. It opens up the possibility of fresh teaching and learning conversations between academics and librarians who collaborate in this endeavour.

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